

# CHR SERIES INDUSTRIAL CHARGERS

The CHR series is a field-proven line of high reliability rectifiers, specifically designed for telecommunication and industrial applications. Offering field-proven reliability of over 20 years, the CHR chargers offer the safest and most reliable charging of all types of batteries, sealed or vented. Advance, flexible design allows the chargers to be configured for most user-specific applications without NRE or set up cost.

**20+ Year life design for industrial applications.**  
**Designed to CSA, UL, CE (UL ANSI 1012, CE).**  
**Quality management system per ISO9000.**  
**Very low output ripple and emi.**

**Battery eliminator mode is standard.**  
**Battery cannot be overcharged under any operating condition.**  
**Automatic or manual float, equalize and formation modes.**  
**Rack mount, wall mount, OEM, or free standing enclosures.**



<b>Input</b>	120/240 (+/-10%), 50-60Hz, 1-Ph. All standard 3-Ph input from 208V to 600V (+/-10%), 50-60Hz.		
<b>Power Factor</b>	0.76 typical for single phase units, 0.85 typical for 3-phase units.		
<b>Output Voltage</b>	Standard outputs are: 6V, 12V, 24V, 36V, 48V, 72V, 120V and 250V.		
<b>Voltage per Cell</b>		<b>L/Acid Sealed</b>	<b>L/Acid Flooded</b>
	Nominal	2.0V	2.0V
	Float	2.2 to 2.25V	2.10 to 2.25V
	Equalize	2.3 to 2.4V	2.3 to 2.5V
	Formation	2.45 to 2.7V	2.45 to 2.7V
	Discharge	1.75V	1.75V
			<b>Ni-Cad (Vented)</b>
			1.2V
			1.3 to 1.45V
			1.4 to 1.55V
			1.5 TO 1.65v
			1.0V
	<i>Settings may vary per manufacturer's recommendation depending upon usage and ambient conditions.</i>		
<b>Output Current</b>	From 0.005 Amp to 100 Amps. Units may be operated in parallel for higher output current.		
<b>Line Regulation</b>	0.5%.		
<b>Load Regulation</b>	0.5% from 10-90% load, +/- 1% typical		
<b>Ripple</b>	0.5% ripple (without batteries) is standard. Units equipped with optional extra filtering: 30mV (32dBrc voice band) for 12V and 24V units. 60mV for 48V units. 100mV for 72V and 120V units. 200mV for 250V output units.		
<b>Equalization</b>	Rectangular current limit (voltage fold back), adjustable.		
<b>Protection</b>	Common mode and differential ac line filtering. Brownout, transient and lightning protection. Current walk-in soft-start. Overload and short circuit protection. Isolation: Per IEC 255-5 (1997), EMI: IEC 801-3 (1984) Shock and Vibration: IEC 255-21-1 (1988).		
<b>Reverse polarity</b>	Battery polarity reversal protection is provided.		
<b>Parallel Operation</b>	Chargers may be operated in parallel with current sharing or master/slave arrangement.		
<b>Output Metering</b>	Analog and digital meters are available.		
<b>Circuit Breakers</b>	AC and DC circuit breakers are available.		
<b>Alarms</b>	Wide array of available status monitoring alarms.		
<b>Efficiency</b>	Up to 93%, model dependent.		
<b>Cooling</b>	Convection or forced air cooling with thermostatically controlled fan, model dependent.		
<b>Environmental</b>	Operating temperature range: -10°C to +40°C. Storage: -40°C to +85°C Humidity, non-condensing. 0° to 95% RH.		

# CHR SERIES INDUSTRIAL RECTIFIERS

## STANDARD FEATURES

Unless otherwise specified, the standard rectifiers/chargers include the standards features S1 thru S10 inclusive.

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|--|---|
| <b>S1</b> <i>Automatic constant potential-constant current mode.</i> | <b>S6</b> <i>In put and output transient/noise protection.</i>        |
| <b>S2</b> <i>May be used as a battery eliminator.</i>                | <b>S7</b> <i>Power on/off switch, input/output fuses.</i>             |
| <b>S3</b> <i>Bench, wall, rack or floor mount cabinets.</i>          | <b>S8</b> <i>Battery is protected under all operating conditions.</i> |
| <b>S4</b> <i>120 or 240V, 50-60Hz, 1-phase operation.</i>            | <b>S9</b> <i>-10° to +40°C temp. range; up to 95% RH, NC.</i>         |
| <b>S5</b> <i>0.5% regulation. Less than 0.5% ripple.</i>             | <b>S10</b> <i>Overload and short circuit protection.</i>              |

## AVAILABLE OPTIONS & ACCESSORIES

### A Rectifier Options

- A1 All standard 3-phase input ac, 208 to 600V, 50-60Hz.
- A2 Battery temperature compensation.
- A3 Extended temperature range (-30° to +60°C).
- A4 Extra low output ripple filtering.
- A5 Front panel current limit and output voltage adjustment.
- A6 Low battery voltage load disconnect (LVD), internal.
- A7 Low battery voltage load disconnect (LVD), external.
- A8 Remote turn-on, turn-off.
- A9 Lightning protection, input and output.
- A10 Tropicalization and fungus proofing

### B Output Options

- B1 AC circuit breaker, dc fuse.
- B2 AC and DC circuit breakers..
- B3 Battery isolation diode.
- B4 Battery or load disconnect switches.
- B5 Additional terminals for load or battery.
- B6 Voltage control unit (VCU) for load.
- B7 DC distribution per purchase specifications..
- B8 Charge-Discharge panel, with center-zero ammeter.

### C Metering Options

- C1 Output voltmeter and ammeter (analog), 2% or 1% accuracy as specified. (2% default).
- C2 Digital output voltmeter/ammeter with V/A switch, 1%.
- C3 Separate digital output ammeter and voltmeter, 1%.
- C4 AC side metering (voltage, frequency), as specified.

### D Equalize Options

- D1 Manual Equalize: Switch with equalize LED, without adjustment provisions.
- D2 Auto-Equalize: Float-equalize mode switch with independant voltage adjustment controls and LEDs, and an 8-hr equalize timer. Equalize function is auto-initiated after an ac outage. Full manual over-ride.
- D3 Equalize Timer: Allows user to customize equalization by selecting the equalize frequency (number of days) and equalize duration (number of hours ).

### D Equalize Options (Cont/...)

- D4 Monitor & Control Module (MCM): Allows selection of float, equalize and formation modes, complete with independant controls for voltage setting and LED indicators. Equalization is automatically initiated after an ac outage or if a low voltage condition is detected for more than 3 seconds. Equalize mode self-terminates after 8 hours. Equalization can also be started or terminated manually at any time. Summary alarm LED and audible alarm tone with "cancel" switch are also provided.

### E Alarm Options

Separate Form-C dry contacts are provided for each alarm.

- E1 General alarm for low voltage (LV), overload or ac failure.
- E2 Low voltage alarm (LVA).
- E3 High voltage without shutdown alarm (HVA).
- E4 High voltage alarm with shutdown, manual reset. (HVSD).
- E5 AC fail alarm (ACF).
- E6 AC phase failure alarm (3-phase units only).
- E7 Ground fault alarm, positive and negative faults (GFA).
- E8 Charger fail alarm (CFA).
- E9 Over-temperature alarm(OTA).
- E10 Input or output breaker trip alarm, as specified.
- E11 Additional alarm contacts for user selected alarms.
- E12 Summary alarm.

### F Enclosure Options

- F1 Rack mount cabinet, 19-inch.
- F2 Extension brackets for 23-inch rack.
- F3 Wall mount cabinet
- F5 Freestanding cabinet.
- F6 Outdoors cabinet (NEMA4, IP Class, GR487).
- F7 Wall mount, drip-proof marine cabinet.
- F8 Ruggedized cabinet for mobile application.
- F9 Anti-condensation heater.
- F10 Encapsulated (thermal epoxy) cabinet (not available on all models).
- F11 Customization per customer specifications.